

AMENDMENTS TO THE CLAIMS

Claim 1 (Withdrawn) A peritoneal function testing method in which a ratio $MTAC_{un}/MTAC_c$ calculated using $MTAC_{un}$ and $MTAC_c$ is used as an index for a peritoneal function test, where $MTAC_{un}$ is an overall mass transfer—area coefficient for urea nitrogen and $MTAC_c$ is an overall mass transfer—area coefficient for creatinine.

Claim 2 (Withdrawn) The peritoneal function testing method of Claim 1, wherein the $MTAC_{un}$ and the $MTAC_c$ are obtained by computing Pyle-Popovich model.

Claim 3 (Withdrawn) The peritoneal function testing method of Claim 1, wherein a permeability coefficient for cell pores ($L_P S_C$) and an overall permeability coefficient ($L_P S$) are further calculated from Three-Pore Theory model while a ratio $L_P S_C/L_P S$ calculated using the $L_P S_C$ and the $L_P S$ is obtained, and the $L_P S_C/L_P S$ ratio and the $MTAC_{un}/MTAC_c$ ratio are used as indexes for the peritoneal function test.

Claim 4 (Withdrawn) The peritoneal function testing method of Claim 3, wherein a correlation between the $L_P S_C/L_P S$ ratio and the $MTAC_{un}/MTAC_c$ ratio is used as an index for the peritoneal function test.

Claim 5 (Withdrawn) The peritoneal function testing method of Claim 1, wherein the $MTAC_{un}/MTAC_c$ ratio and a volume of water removal are used as indexes for the peritoneal function test.

Claim 6 (Currently Amended) A peritoneal function testing method comprising:

a 1st computation step ~~for~~ of obtaining data of a dialysis patient using a computation unit and obtaining individual initial estimate values for (i) $MTAC_{glc}$, $MTAC_{un}$, and $MTAC_c$ by using the obtained data and a processor of the computation unit to compute a computing Pyle-Popovich model, as well as for, and (ii) a ratio L_{PS_C}/L_{PS} ratio by using L_{PS_C} and L_{PS} , where $MTAC_{glc}$ is an overall mass transfer-area transfer—area coefficient for glucose, $MTAC_{un}$ is an overall mass transfer-area transfer—area coefficient for urea nitrogen, $MTAC_c$ is an overall mass transfer-area transfer—area coefficient for creatinine, L_{PS_C} is a permeability coefficient for cell pores, and L_{PS} is an overall permeability coefficient; and

a 2nd computation step, following the 1st computation step, of using the computation unit to (i) obtain computation results by computing a in which Three-Pore Theory model is computed using by introducing the individual initial estimate values for the $MTAC_{glc}$, the $MTAC_{un}$, the $MTAC_c$, and the L_{PS_C}/L_{PS} ratio obtained by the 1st computation step thereto, and (ii) calculate an optimal solution of the computation results obtained by from computing the Three-Pore Theory model, the optimal solution being calculated is calculated using a Genetic Algorithm, wherein; and

using a ratio $MTAC_{un}/MTAC_c$ ratio, which is calculated by using an optimal $MTAC_{un}$ and an optimal $MTAC_c$ determined using by the optimal solution, is used as an index for a peritoneal function test.

Claim 7 (Currently Amended) The peritoneal function testing method of Claim 6, wherein

in the 1st computation step including the computing of the Pyle-Popovich model, solute concentration values for the glucose, the urea nitrogen, and the creatinine are individually calculated as approximation solutions of linear differential equations.

Claim 8 (Previously Presented) The peritoneal function testing method of Claim 7, wherein the $MTAC_{un}/MTAC_c$ ratio and a volume of water removal are used as indexes for the peritoneal function test.

Claim 9 (Previously Presented) The peritoneal function testing method of Claim 8, wherein a correlation between the $MTAC_{un}/MTAC_c$ ratio and the volume of water removal is used as an index for the peritoneal function test.

Claim 10 (Withdrawn) A peritoneal function testing method using Three-Pore Theory model, wherein a permeability coefficient for cell pores (L_{PS_C}) and an overall permeability coefficient (L_{PS}) are calculated while a ratio L_{PS_C}/L_{PS} calculated using the L_{PS_C} and the L_{PS} is obtained, and the L_{PS_C}/L_{PS} ratio is used as an index for a peritoneal function test.

Claim 11 (Withdrawn) The peritoneal function testing method of Claim 10, wherein the L_{PS_C}/L_{PS} ratio and a volume of water removal are used as indexes for the peritoneal function test.

Claim 12 (Withdrawn) The peritoneal function testing method of Claim 11, wherein

a correlation between the $L_P S_C / L_P S$ ratio and the volume of water removal is used as an index for the peritoneal function test.

Claim 13 (Withdrawn) A peritoneal dialysis planning apparatus comprising a computation unit that performs computation using data obtained from a dialysis patient and outputs results of the computation to an output unit, characterized by:

the computation unit calculates a ratio $MTAC_{un}/MTAC_c$ by using $MTAC_{un}$ and $MTAC_c$, where $MTAC_{un}$ is an overall mass transfer—area coefficient for urea nitrogen and $MTAC_c$ is an overall mass transfer—area coefficient for creatinine; and

the output unit outputs the $MTAC_{un}/MTAC_c$ ratio as an index for a peritoneal function test.

Claim 14 (Withdrawn) The peritoneal dialysis planning apparatus of Claim 13, wherein the computation unit obtains the $MTAC_{un}$ and the $MTAC_c$ by computing Pyle-Popovich model.

Claim 15 (Withdrawn) The peritoneal dialysis planning apparatus of Claim 14, wherein the computation unit further (i) calculates a permeability coefficient for cell pores ($L_P S_C$) and an overall permeability coefficient ($L_P S$) from Three-Pore Theory model, and also obtains a ratio $L_P S_C / L_P S$, and

(ii) makes a graph of a correlation between the $L_P S_C / L_P S$ ratio and the $MTAC_{un}/MTAC_c$ ratio, which is output to the output unit.

Claim 16 (Withdrawn) The peritoneal dialysis planning apparatus of Claim 15, wherein
the output unit is a display unit, and
the display unit outputs the correlation by displaying a distribution of plotted actual
measurements of multiple patients and a regression line for the distribution.

Claim 17 (Withdrawn) The peritoneal dialysis planning apparatus of Claim 13, wherein
a correlation between the $MTAC_{un}/MTAC_c$ ratio and a volume of water removal is further
presented in a graph, which is output to the output unit.

Claim 18 (Currently Amended) A peritoneal dialysis planning apparatus comprising a
~~computation unit that performs computation using data obtained from a dialysis patient and~~
~~outputs results of the computation to an output unit, characterized by:~~

_____ a processor;

_____ a memory;

~~the a~~ computation unit operable to (i) obtain data of a dialysis patient and store the
obtained data in the memory obtains, (ii) obtain individual initial estimate values for $MTAC_{glc}$,
 $MTAC_{un}$, and $MTAC_c$ by using the obtained data and the processor to compute a computing Pyle-
Popovich model, ~~as well as for~~ and for a ratio L_{PS_C}/L_{PS} ratio by using L_{PS_C} and L_{PS} , where
 $MTAC_{glc}$ is an overall mass transfer-area-transfer-area coefficient for glucose, $MTAC_{un}$ is an
overall mass transfer-area-transfer-area coefficient for urea nitrogen, $MTAC_c$ is an overall mass
transfer-area-transfer-area coefficient for creatinine, L_{PS_C} is a permeability coefficient for cell
pores, and L_{PS} is an overall permeability coefficient, ~~then (ii) performs~~ (iii) obtain computation

~~results by computing a Three-Pore Theory model using the processor and computation by introducing the individual initial estimate values for the $MTAC_{glc}$, the $MTAC_{un}$, the $MTAC_c$, and the L_{PS}/L_{PS} ratio into Three-Pore Theory model, (iii) calculates, (iv) calculate, using the processor and a Genetic Algorithm, an optimal solution of the computation results obtained by computing from the Three-Pore Theory model by using Genetic Algorithm, and furthermore (iv) calculates, and (v) calculate a ratio $MTAC_{un}/MTAC_c$ ratio by using the processor, an optimal $MTAC_{un}$ determined using the optimal solution and an optimal $MTAC_c$ determined using by the optimal solution; and~~

~~the an output unit operable to output-outputs the $MTAC_{un}/MTAC_c$ ratio as an index for a peritoneal function test.~~

Claim 19 (Currently Amended) The peritoneal dialysis planning apparatus of Claim 18, wherein

~~during~~ⁱⁿ the computation of the Pyle-Popovich model, the computation unit calculates individual solute concentration values for the glucose, the urea nitrogen, and the creatinine, as approximation solutions of linear differential equations.

Claim 20 (Currently Amended) The peritoneal dialysis planning apparatus of Claim 18, wherein

a correlation between ~~a ratio~~ (i) the $MTAC_{un}/MTAC_c$ ratio calculated using the optimal $MTAC_{un}$ and the optimal $MTAC_c$ and (ii) a volume of water removal, ~~is further~~ presented in a graph, ~~which that~~ is output to the output unit.

Claim 21 (Currently Amended) The peritoneal dialysis planning apparatus of Claim 20, wherein

wherein the output unit is a display unit, and

wherein the display unit outputs the correlation by displaying a distribution of plotted actual measurements of multiple patients and a regression line for the distribution.

Claim 22 (Currently Amended) The peritoneal dialysis planning apparatus of Claim 18, wherein

the output unit outputs one of the $MTAC_{un}/MTAC_c$ ratio calculated using the optimal solution and ~~an~~ the L_{PS_C}/L_{PS} ratio calculated using ~~of~~ the optimal solution, which is plotted in a two axis ~~two axes~~ coordinate system together with a volume of water removal.

Claim 23 (Withdrawn) A peritoneal dialysis planning apparatus comprising a computation unit that computes Three-Pore Theory model using data obtained from a dialysis patient and outputs results of the computation to an output unit, characterized by:

the computation unit obtains a permeability coefficient for cell pores (L_{PS_C}) and an overall permeability coefficient (L_{PS}) as a result of the computation of the Three-Pore Theory model, and also obtains a ratio L_{PS_C}/L_{PS} ; and

the output unit outputs the L_{PS_C}/L_{PS} ratio as an index of a peritoneal function test.

Claim 24 (Withdrawn) The peritoneal dialysis planning apparatus of Claim 23, wherein

a correlation between the $L_P S_C / L_P S$ ratio and a volume of water removal is further presented in a graph, which is output to the output unit.

Claim 25 (Withdrawn) The peritoneal dialysis planning apparatus of Claim 23, wherein the output unit outputs one of an $MTAC_{un} / MTAC_c$ ratio obtained by the computation unit and the $L_P S_C / L_P S$ ratio, which is plotted in a two-axes coordinate system together with a volume of water removal.

Claim 26 (Withdrawn) The peritoneal dialysis planning apparatus of Claim 25, wherein when outputting one of the $MTAC_{un} / MTAC_c$ ratio and the $L_P S_C / L_P S$ ratio, the output unit further presents, in the coordinate system, information indicating a peritoneal function state obtained according to the volume of water removal.

Claim 27 (Withdrawn) The peritoneal dialysis planning apparatus of Claim 26, wherein the output unit is a display unit, and the display unit outputs a correlation between the $L_P S_C / L_P S$ ratio and a volume of water removal by displaying a distribution of plotted actual measurements of multiple patients and a regression line for the distribution.

Claim 28 (Withdrawn) A computer-readable recording medium having a peritoneal function testing program recorded thereon, wherein the peritoneal function testing program executes an $MTAC_{un} / MTAC_c$ calculation step in which a ratio $MTAC_{un} / MTAC_c$ is calculated using $MTAC_{un}$ and $MTAC_c$ so as to be used as an

index for a peritoneal function test, where $MTAC_{un}$ is an overall mass transfer—area coefficient for urea nitrogen and $MTAC_c$ is an overall mass transfer—area coefficient for creatinine.

Claim 29 (Withdrawn) The computer-readable recording medium of Claim 28, wherein the peritoneal function testing program further executes an $MTAC$ calculation step in which the $MTAC_{un}$ and the $MTAC_c$ are obtained by computing Pyle-Popovich model.

Claim 30 (Withdrawn) The computer-readable recording medium of Claim 28, wherein the peritoneal function testing program further (i) comprises an $L_P S_C / L_P S$ calculation step in which a permeability coefficient for cell pores ($L_P S_C$) and an overall permeability coefficient ($L_P S$) are calculated from Three-Pore Theory model while a ratio $L_P S_C / L_P S$ calculated using the $L_P S_C$ and the $L_P S$ is obtained, and
(ii) executes use of the $L_P S_C / L_P S$ ratio and a volume of water removal as indexes for the peritoneal function test.

Claim 31 (Withdrawn) The computer-readable recording medium of Claim 28, wherein the peritoneal function testing program further executes use of the $MTAC_{un} / MTAC_c$ ratio and a volume of water removal as indexes for the peritoneal function test.

Claim 32 (Currently Amended) A computer-readable recording medium having a peritoneal function testing program recorded thereon, the peritoneal function testing program causing a computer to execute a peritoneal function testing method comprising: wherein
~~the peritoneal function testing program comprises:~~

a 1st computation step ~~for~~ of obtaining data of a dialysis patient using a computation unit and obtaining individual initial estimate values for (i) $MTAC_{glc}$, $MTAC_{un}$, and $MTAC_c$ by using the obtained data and a processor of the computation unit to compute a computing Pyle-Popovich model, as well as for, and (ii) a ratio L_{PS_C}/L_{PS} ratio by using L_{PS_C} and L_{PS} , where $MTAC_{glc}$ is an overall mass transfer-area transfer—area coefficient for glucose, $MTAC_{un}$ is an overall mass transfer-area transfer—area coefficient for urea nitrogen, $MTAC_c$ is an overall mass transfer-area transfer—area coefficient for creatinine, L_{PS_C} is a permeability coefficient for cell pores, and the L_{PS} is an overall permeability coefficient; and

a 2nd computation step, following the 1st computation step, of using the computation unit to (i) obtain computation results by computing a in which Three-Pore Theory model is computed by introducing using the individual initial estimate values for the $MTAC_{glc}$, the $MTAC_{un}$, the $MTAC_c$, and the L_{PS_C}/L_{PS} ratio obtained by the 1st computation step thereto, and (ii) calculate an optimal solution of the computation results obtained by from computing the Three-Pore Theory model, the optimal solution being calculated is calculated using a Genetic Algorithm, wherein; and

using use of a ratio $MTAC_{un}/MTAC_c$ ratio, which is calculated using an optimal $MTAC_{un}$ and an optimal $MTAC_c$ determined using by the optimal solution, as an index for a peritoneal function test is executed.

Claim 33(Currently Amended) The computer-readable recording medium of Claim 32, wherein

the peritoneal function testing method includes program executes, in, during the 1st computation step including the computing the computation of the Pyle-Popovich model,

~~calculating calculation of~~ individual solute concentration values for the glucose, the urea nitrogen, and the creatinine, as approximation solutions of linear differential equations.

Claim 34 (Currently Amended) The computer-readable recording medium of Claim 32, wherein

the peritoneal function testing ~~method includes program further executes use of~~ using the $MTAC_{un}/MTAC_c$ ratio and a volume of water removal as indexes for the peritoneal function test.

Claim 35 (Withdrawn) A computer-readable recording medium on which a peritoneal function testing program using Three-Pore Theory model is recorded, wherein the peritoneal function testing program (i) comprises:
a permeability-coefficient calculation step for calculating a permeability coefficient for cell pores ($L_P S_C$) and an overall permeability coefficient ($L_P S$); and
an $L_P S_C/L_P S$ calculation step for calculating a ratio $L_P S_C/L_P S$, and
(ii) executes use of the $L_P S_C/L_P S$ ratio as an index for a peritoneal function test.

Claim 36 (Withdrawn) The computer-readable recording medium of Claim 35, wherein the peritoneal function testing program further executes use of the $L_P S_C/L_P S$ ratio and a volume of water removal as indexes for the peritoneal function test.

Claim 37 (Withdrawn) A peritoneal function testing program for executing an $MTAC_{un}/MTAC_c$ calculation step in which a ratio $MTAC_{un}/MTAC_c$ is calculated using $MTAC_{un}$ and

$MTAC_c$ so as to be used as an index for a peritoneal function test, where $MTAC_{un}$ is an overall mass transfer—area coefficient for urea nitrogen and $MTAC_c$ is an overall mass transfer—area coefficient for creatinine.

Claim 38 (Withdrawn) The peritoneal function testing program of Claim 37, further executing an $MTAC$ calculation step in which the $MTAC_{un}$ and the $MTAC_c$ are obtained by computing Pyle-Popovich model.

Claim 39 (Withdrawn) The peritoneal function testing program of Claim 37, further comprising:

an L_{pSC}/L_{pS} calculation step in which a permeability coefficient for cell pores (L_{pSC}) and an overall permeability coefficient (L_{pS}) are calculated from Three-Pore Theory model while a ratio L_{pSC}/L_{pS} calculated using the L_{pSC} and the L_{pS} is obtained, wherein

use of the L_{pSC}/L_{pS} ratio and a volume of water removal as indexes for the peritoneal function test is executed.

Claim 40 (Withdrawn) The peritoneal function testing program of Claim 37, further executing use of the $MTAC_{un}/MTAC_c$ ratio and a volume of water removal as indexes for the peritoneal function test.

Claims 41-43 (Cancelled)

Claim 44 (Withdrawn) A peritoneal function testing program using Three-Pore Theory model, (i) comprising:

a permeability-coefficient calculation step for calculating a permeability coefficient for cell pores ($L_P S_C$) and an overall permeability coefficient ($L_P S$); and
an $L_P S_C/L_P S$ calculation step for calculating a ratio $L_P S_C/L_P S$, and
(ii) executing use of the $L_P S_C/L_P S$ ratio as an index for a peritoneal function test.

Claim 45 (Withdrawn) The peritoneal function testing program of Claim 44, executing use of the $L_P S_C/L_P S$ ratio and a volume of water removal as indexes for the peritoneal function test.